WHAT IS CLAIMED IS:

1. A vascular filter guide wire for directing placement of a catheter with respect to a blood vessel lesion and filtering particulate matter dislodged by treatment of said vessel, said guide wire including:

an elongated flexible core wire having a proximal end and a distal end for insertion and steerage through a patient's vasculature to a position downstream of said lesion;

a tubular flexible shaft slidably disposed along said core wire, said shaft including a proximal portion and a distal portion disposed proximally of said core wire distal end for placement downstream of said lesion; and

a collapsible filter coupled at its proximal end to said distal portion of said shaft and at its distal end to said core wire, said filter operable in response to the relative displacement between said shaft and said core wire to radially extend outwardly within said vasculature and trap particulate matter arising from the treatment of said lesion.

2. A vascular filter guide wire according to claim 1 and further including:

a locking mechanism to maintain said filter in a deployed position for particulate filtration during lesion treatment.

3. A vascular filter guide wire according to claim 1 wherein:

said core wire includes a filter housing for confining said filter in a closed configuration.

4. A vascular filter guide wire according to claim 3 wherein:

said housing is formed in a frusto-conical configuration and axially disposed on said core wire, said housing including an oversized-in-diameter mouth opening axially outwardly from said wire distal end, and a reduced-in-diameter collar radially fixed to said core wire proximate said distal end.

5. A vascular filter guide wire according to claim 3 wherein said strainer is formed to collapsibly engage said housing in a closed state and including:

a plurality of radially spaced apart support struts defining a cage, said struts collapsibly hinged at one end along a common radial path on said shaft and interconnected through a woven peripheral mesh; and

a biasing element interposed concentrically between said struts and said shaft to bias said struts radially outwardly in an open state.

6. A vascular filter guide wire according to claim 5 wherein:

said spaced apart struts are disposed radially equidistant.

7. A vascular filter guide wire according to claim 5 wherein:

said spaced apart struts are disposed in a spiral relationship.

8. A vascular filter guide wire according to claim 5 wherein:

said struts are formed of a high elastic material.

9. A vascular ~~filter~~ guide wire according to claim 5 wherein:

said woven mesh comprises a polymeric material.

10. A vascular filter guide wire according to claim 5 wherein:

said woven mesh density is in the range 40 to 500 micrometers.

11. A vascular filter guide wire according to claim 5 wherein:

said biasing element comprises a quad filar spring.

12. A vascular filter guide wire according to claim 1, further including a deployment/retraction mechanism including:

a removable base formed with a threaded passage for confining the proximal portion of said shaft; and

a manually rotatable control element, said control element formed with a threaded hollow shank and mounted to the proximal end of said wire, said control element operable to threadably engage said passage and incrementally urge relative axial displacement between said shaft and said wire to extend and retract said filter.

13. A vascular filter guide wire according to claim 1 wherein said filter includes:

a cylindrical support cage having a closed distal end and a flared proximal end, said distal end fixed to the distal extremity of said shaft, and said proximal end extending axially and mounted to said core wire distal end; and

a continuous woven mesh having a plurality of longitudinal pleats and disposed within said support cage for straining particulate matter.

14. A vascular filter guide wire according to claim 13 wherein:

said filter is formed with oppositely disposed cone-shaped ends to define said front and back halves.

15. A vascular filter guide wire according to claim 14 wherein

said woven mesh is mounted to said cage back half.

16. A vascular filter guide wire according to claim 13 wherein:

said woven mesh comprises a material from the group including stainless steel and nickel-titanium alloy.

17. A vascular filter guide wire according to claim 13 wherein:

said wire mesh density is in the range 40 to 500 micrometers.

18. A vascular filter guide wire according to claim 1 wherein said filter includes:

a braid comprising a composite metallic/polymeric material, said material including

a plurality of metallic filaments mounted to said respective shiftable shaft and core wire to define a support structure and

a polymeric mesh interwoven with said metallic filaments to define a strainer.

19. A vascular filter guide wire according to claim 18 wherein:

said metallic filaments have respective common proximal and distal halves; and

said polymeric mesh is interwoven in said distal half of said metallic filaments.

20. A vascular filter guide wire according to claim 18 wherein:

said metallic and polymeric filaments are woven at a ratio of approximately 1:4.

21. A vascular filter guide wire for directing precision placement of a catheter with respect to a lesion and filtering particulate matter dislodged by treatment of said lesion, said guide wire including:

an actuating mechanism;

an elongated flexible core wire having a proximal end attached to said actuating mechanism and a distal end for insertion and steerage through a patient's vasculature to a position downstream of said lesion;

a tubular flexible shaft slidably disposed along said core wire, said shaft including a proximal portion affixed to said actuating mechanism in movable relation to said wire, and a

distal portion disposed inwardly from the distal end of said core wire for placement downstream of said lesion;

a locking mechanism to maintain said filter in an extended position during lesion treatment; and

a collapsible filter coupled to said shaft distal portion, said filter including a collapsible support cage having respective front and back halves for slidably extending and retracting axially along said wire, said cage having a first end fixed to the distal extremity of said shaft, and an opposite end mounted to said core wire distal end, said strainer further including a continuous woven mesh disposed within said support cage for straining particulate matter and operable, in response to manual manipulation of said actuating mechanism to effect relative displacement between said shaft and said core wire, to radially extend outwardly within said vasculature and trap particulate matter arising from the treatment of said lesion.

22. A catheter system for treating a blood vessel lesion within a vasculature, said catheter system including:

a catheter having a lesion treatment device; and

a vascular filter guide wire for directing said balloon catheter to said lesion, said guide wire including a collapsible filter for manual deployment downstream of said balloon catheter to trap particulate matter arising from the treatment of said lesion.

23. A catheter system according to claim 22 wherein said vascular filter guide wire includes:

an elongated flexible core wire having a proximal end and a distal end for insertion and steerage through a patient's vasculature to a position downstream of said lesion;

a tubular flexible shaft slidably disposed along said core wire, said shaft including a proximal portion and a distal portion disposed inwardly from said core wire distal end for placement downstream of said lesion; and

a collapsible filter coupled at one end to said shaft and at its other end to said core wire, said filter operable in response to relative displacement between said shaft and said core wire, to radially extend outwardly within said vasculature

~~and trap particulate matter arising from the treatment of said lesion.~~

24. A method of filtering particulate debris from a vasculature caused by treatment of a lesion with a lesion treatment device, said catheter guided to the location of said lesion by a vascular filter guide wire having a core wire, a slidable shaft, and a manually collapsible filter mounted on the shaft and deployable upon relative displacement between said core wire and said shaft, said method including the steps of:

guiding said vascular filter guide wire through said vasculature along a predetermined path to a lesion such that said filter is disposed downstream of said lesion;

deploying said filter radially outwardly by shifting said shaft relative to said core wire;

running said catheter over said guide wire along said predetermined path to position said lesion treatment device proximate said lesion;

treating said lesion according to a predetermined procedure;

maintaining said filter in a deployed position to trap particulate matter dislodged during said lesion treatment and prevent said matter from progressing downstream;

withdrawing said catheter from said vasculature;

retracting said filter radially inwardly by shifting said shaft back to said original position; and

removing said guide wire from said vasculature.

25. A vascular filter for controllably expanding within a blood vessel to trap particulate matter loosened from a lesion, said filter responsive to relatively shiftable control elements to expand and retract, said filter including:

a braid comprising a composite metallic/polymeric material, said material including

a plurality of metallic filaments mounted to said respective shiftable shaft and core wire to define a support structure, and

a polymeric mesh interwoven with said metallic filaments to define a strainer.

26. A vascular filter guide wire according to claim 25 wherein:

said metallic filaments have respective common proximal and distal halves; and

said polymeric mesh is interwoven in said distal half of said metallic filaments.

27. A vascular filter guide wire according to claim 25 wherein:

said metallic and polymeric filaments are woven at a ratio of approximately 1:4.

28. A method of fabricating a vascular filter, said method including the steps of:

selecting a mandrel having a plurality of consecutively connected forms;

weaving a continuous layer of braid over said consecutively connected forms;

bonding said braid filaments at spaced apart sections between respective forms;

separating said respective braided forms at said bonded sections; and

removing said forms from said layer of braid.

29. A method of fabricating a vascular filter according to claim 28 wherein said step of weaving includes:

forming a layer of braid over the proximal and distal halves of each form with a composite metallic/polymeric material to having a pic density sufficient to strain particulate matter.

30. A method of fabricating a vascular filter according to claim 29 and further including the step of:

cutting said polymeric filaments from said proximal halves of each form; and

fusing the ends of said cut filaments to form a collection cavity around each form.

31. A method of fabricating a vascular filter according to claim 28 wherein after said bonding step, said method further includes the steps of:

installing a filter layer over each form;

weaving a second continuous layer of braid having a plurality of second braid filaments over said installed filters; and

bonding said second braid filaments at said spaced apart sections.

32. A method of fabricating a vascular filter according to claim 28 wherein said forms are molded from a dissolvable material, said step of removing including:

dissolving said forms by an appropriate solvent.